

WATER GAS AND COAL GAS

HEARING BEFORE HOUSE COMMITTEE.

Committee on the District of Columbia, House of Representatives, Friday, January 29, 1909. The committee met at 10 o'clock a. m., Hon. Edward L. Taylor, jr., presiding. Statement of Forrest E. Barker, of Boston, Mass.

Mr. Barker—I have been a member of the Board of Gas and Electric Light Commissioners of the city of Boston since 1884. I am here at the disposal of the committee. I hardly know in what the committee may be most interested, and I will answer any question that I can be able to which the committee may desire to ask.

Mr. Taylor—It is the custom of the committee to allow a witness to make any statement that may be made with reference to the question we are investigating as completely as possible, and then ask questions and not interrupt him too much. If you have no statement, of course, any member of the committee might ask questions of you. If you have any statement to make along the line of the manufacture of water gas and its effect upon public health and safety and so on, I wish you would state it, and we will interrupt you, if necessary, to ask questions.

Mr. Barker—Perhaps the committee would be interested in a brief historical statement with respect to the consideration of this question in Massachusetts, where, perhaps, more work has been done in respect to it than anywhere else in the world.

Mr. Taylor—I might say that Massachusetts has been cited a number of times by other witnesses, and we would like to hear from you.

Mr. Barker—Certainly more than any place in the United States. We have had a statute there limiting the amount of carbon monoxide in the water gas to 10 per cent of the volume of gas. This act was passed in 1880. It may be of interest to know that it was not passed upon the recommendation in the report of the board of health, or of health, or any person in authority to supervise or inspect gas. We have had a gas inspector in Massachusetts since, I think, 1868, and in the report of the inspector in 1880, he recommended that for two or three years previously there were suggestions and recommendations with respect to legislation defining the purity and quality of gas to be delivered in the State, but no recommendation with respect to carbon monoxide. Those recommendations related to candle power and the amount of sulphur impurities and ammonia. I mention this because it is such a familiar fact that we have had a thorough investigation of the subject there, or at least an extensive investigation, and the general assumption, I suppose, would be that that investigation took place before the legislature, but that took place after the legislature.

These recommendations were made by the inspector, and when the recommendations found form in legislation the carbon monoxide provision had been added. It is a significant fact that at that time water gas was produced in Massachusetts in the larger cities of the country, and the evils of competition had not been as well understood then as they have since come to be, and the water gas won its way in the legislature, and I mention this as significant because the contests with respect to water gas, so-called, and coal gas have always been prominent, and the competitive features have always been prominent in any discussion of the subject.

The 10 per cent provision in the law made the introduction of water gas impossible, and it was that fact which led to the agitation in the city of Boston. This agitation reached its height in 1884. There had been an attempt of promoters of the water gas supply to get authority to make and distribute their gas in the city as a practical matter, and as part of that attempt came the effort to secure a repeal of this law. That was in 1884. I happened to be a member of the house of representatives that year, and so the repeal of the law was a matter quite vivid in my mind. The committee, which was a joint committee, as our legislative committees mostly are, favored the repeal of the law; that is to say, the majority. There was a minority dissenting. The measure for the repeal of the law passed the house almost unanimously after discussion, but it was bitterly contested in the senate, the two interests, the coal gas and the water gas, being arrayed upon one side in favor of the law, and the people who desired to enter the field being arrayed upon the other side in favor of its repeal.

Mr. Taylor—That is to say, the people who desired to enter the field were in favor of the repeal of the law providing for 10 per cent monoxide?

Mr. Barker—Yes, sir; they desired to make and distribute their gas in Boston. Mr. Sims—Which was prohibited under the 10 per cent provision?

Mr. Barker—It was impossible under the 10 per cent provision. The contest was so sharp and so bitter in the senate that it gave rise to a number of scandals which have ever had in Massachusetts in our legislature, and I think the provision was defeated by a single vote.

Following this legislative session the subject was taken up by the State board of health, and it was then that the reports were made and the experiments were conducted, which, I see from the printed report, were conducted in prior sessions of this committee. In 1888 the subject was again before the legislature, and it was that year that the present board of gas commissioners was created. As I have just stated, the question of carbon monoxide limitation, and the question of competition went hand in hand in the contest and in the discussions, and the creation of the gas commission was intended to provide a board which should pass upon the question of competing concerns, among the other things which were intrusted to that board.

Mr. Taylor—Did this board have anything to do with determining the quality of the nature of the gas to be used?

Mr. Barker—Yes, sir. It has the regulation of the price, of the quality, and compulsory supply powers. It has jurisdiction over the issues of all securities and general supervision over the companies with respect to all these things where the public and the company come in contact, and has, directly or indirectly, to deal with most of the problems that are presented to the gas manager. If the board has to do with the quality, it has to do with seeing that the quality as fixed by the statute is complied with, and it also has instructions under the statute to make recommendations to the legislature as to its quality when, in its judgment, such recommendations ought to be made.

As I started to say, it happened that between the sessions of 1884 and 1885, the people representing the water gas interests had received privileges in the streets of the city of Boston from the local authorities. With the appointment of the commission, or with the proposition for legislation that to effect, the contest over the carbon monoxide provision somewhat diminished. I mention this fact of the creation of the commission because I notice in a statement in the proceedings in these hearings, in the first day's session, something on the part of the people who seem to indicate that the people who are interested in having the carbon monoxide present had something to do with the creation of the gas commission, and favored it, and that it was in 1888 the fact that the gas commission was created in 1888 instead of 1883, and any person familiar with the facts who

should hear the statement that the people promoting the water gas interests favored the creation of the commission would certainly smile. He did not do so. Mr. Taylor—I do not think we are interested in that matter at all.

Mr. Barker—That was the implication in the report, and that is why I speak of it.

Mr. Sims—These hearings have not been submitted to any of the speakers for correction, and it is the first print. There are errors in the hearings, no doubt, but they would have been corrected had they had opportunity to do so.

Mr. Barker—Of course, I did not know about that. In 1888 the question was again before the legislature, and in that year an act was passed authorizing the gas commission, which had been added to it the authority over electric light companies, to license companies to make and distribute water gas under certain restrictions, and the board then started an investigation of the entire subject. I have here the preliminary report of the board made in 1888, and the final report made in 1889 upon that subject, which I can leave with the committee if they wish to have them. They are very brief, and they are simply portions of the annual report of the board.

Mr. Taylor—Make it a part of your remarks.

Mr. Sims—Dealing with the question of carbon monoxide?

Mr. Barker—Yes.

Mr. Sims—Why not print it with your remarks?

Mr. Barker—You need not stop now. If you will pick out the portions you desire to put in and turn it over to the stenographer we will be glad to have it printed as a portion of your remarks.

Mr. Barker—Will do so. In the pursuit of this inquiry the board, through one or more of its members, examined all of the cases of death from illuminating gas of which they could learn in the principal cities of the country. I myself took part in that investigation and visited all the places mentioned in the report, and some of the time I had one other member of the board, and some of the time I had two. The result was that in 1890 we recommended the passage of the law which would enable us to grant licenses specifying the amount of carbon monoxide that might be put into gas, and that license was to be for one year, or revocable, as the legislature might think wise. The result of that proposition, or perhaps that in combination with other things, was that the provision about carbon monoxide was not passed.

Mr. Taylor—That is, the 10 per cent provision was repealed?

Mr. Barker—Yes, sir.

Mr. Taylor—What year was that?

Mr. Barker—1890.

Mr. Taylor—Can you give us the reason for that? You say it was the result of certain reasons. Why did you reach that conclusion? Why did the legislature and the board reach that conclusion?

Mr. Barker—The board's recommendation was slightly more conservative. The board asked permission to issue special licenses to cities which would allow the amount of carbon monoxide to be allowed might be fixed and to make those licenses revocable, but the legislature went further and entirely repealed the law. The proposition of the board found very little favor in the house of representatives, the vote against it being about three to one, the vote in favor of the entire repeal of the law being about three times the vote for the proposition suggested by the board.

Mr. Taylor—What reason was advanced in the debate in the legislature, regarding the repeal of the law?

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what grounds? What argument did they present as a reason that they would make cheaper gas?

Mr. Barker—Yes; and make it of a higher candle power.

Mr. Sims—Therefore to the interest of the consumer?

Mr. Barker—Yes. Since then—I think it was in 1897—there was a renewal of the agitation, and that was the only time when we have had any apparent public interest in the proposition since the law was repealed. In 1898, more or less, there was a rival interest attempting to get into Boston, and this time it was people who proposed to distribute coal gas, and so to bring public sentiment with them, they raised the carbon monoxide question, and there was a law passed making supervision over gas fittings and piping, and that law is now in force.

Mr. Taylor—Supervision over what?

Mr. Barker—Gas fittings and piping. As a result of the accidents, many of the deaths have been caused by poor piping or poor fittings. For instance, those where the gas key instead of having stopped when the passage-way was closed, might be turned around unconsciously by the investigation of the light, and the gas to continue to escape, and then sometimes gas stoves poorly fitted up by flexible and temporary piping would have the piping separated from the stove and allow the escape of the gas, and those things, coming to the attention of the legislature very prominently in connection with the agitation of this measure with respect to supervision of gas fittings and piping, that is the only agitation we have had, and that is the result of the agitation in the legislature.

Our board keeps watch of all accidents, both fatal and nonfatal, occurring throughout the State from the use of illuminating gas, and ought rather to say from the misuse of it.

Mr. McIlhenny—Do you notice the deaths from electric lights, too?

Mr. Barker—We do, yes; all fatalities from all accidents, whether they are caused from gas or electricity, and they are required to keep a record of, and they are reported to us, and we investigate such as we think need investigation.

Mr. Sims—Have you finished your constructive statement?

Mr. Barker—I have finished the topic, yes, sir.

Mr. Sims—I would like to ask you this, as you are an expert witness and can speak with knowledge of the subject, would you recommend for a city like Washington, Boston, or elsewhere, water gas or coal gas of the same candle power and the same price, if you had to decide which you would advise, like conditions, I mean, it is no difference to the consumer and no difference as in candle power, no difference as to price and no difference to candle power; looking alone to the possibilities of fatal accidents or any kind of accident, which character of gas would you recommend for adoption if you were free to recommend?

Mr. Barker—That is an impossible condition, to my mind, and any answer to it would be purely theoretical, because if you will pardon me, it does not seem to me to propose a practical or possible condition.

Mr. Sims—I want you to answer it exactly as it appears to you, of course.

Mr. Barker—I think I would be quite indifferent about it.

Mr. Sims—Take it as a hypothetical question, that in Washington the manufacture of water gas is a question of expediency to the company. Supposing that the gas company is not affected financially and the consumer is not affected financially, looking alone to the interest of public health, the health of the community, accidents, which would it be wise to do, to use an exclusive coal gas or the gas they do use.

Mr. Barker—That question is involved in the question of expediency, and it is involved in the greater, it seems to me, and I should have to answer it in the same way, because I would be extremely indifferent about it.

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Mr. Sims—In other words, you say that 10 per cent practically excluded water gas from being manufactured at all. The 10 per cent limit for carbon monoxide. Now, evidence has been put before this committee that water gas is five or six times more deadly or dangerous than coal gas containing less than 10 per cent carbon monoxide.

Mr. Barker—That is, I think, you will notice, a poor assumption, as the statement is made by the people who made it. There is no question but what carbon monoxide is a violent poison, and other things better equal the mixture have of it in a mixture the more poisonous that mixture might be, but other things are not equal when you are comparing illuminating coal gas and illuminating water gas so that statement does not apply to the two things. When people undertake to say that it is a certain number of times more poisonous because of the increase in the amount, that is pure assumption. There is absolutely no evidence about it; there have never been any experiments to support the proposition.

Mr. Sims—What do you have to say to that? You say that the mixture of mal life to these gases, coal and water gas, and animals exposed to the water gas died in much less time and are fatally poisoned in much less time? Do you contend that that proposition is true?

Mr. Barker—No, sir; I do not. I think that is true; that is shown by the experiments in Massachusetts. It was in Massachusetts that these experiments were demonstrated, and the experiments are fatal as exposures for a sufficient length of time, as a rule, so that death results, and would result whether the gas was so-called coal gas or water gas. I make no practical exposure.

Mr. Sims—In other words, the practical exposures are necessarily fatal. If fatal at all, in either case, is that what you mean?

Mr. Barker—I do not mean to say that they are necessarily fatal, because we have more cases of recovery after exposure, both from coal gas and from mixed gas, than we have fatalities.

Mr. Sims—You say that the statement in a former part of your testimony that there was a greater number of actual poisonings from exposure to water gas or mixed gas, than there are from exposures to coal gas; that after the statement that water gas was more poisonous than coal gas, you say that it is not.

Mr. Barker—That is right.

Mr. Sims—Now, then, by exposing the people, by exposing the people, to two gases, one that almost universally poisons and the other does not always, but affects by suffocation, would not the chances for recovery in exposure be greater where the trouble would be suffocation rather than poison?

Mr. Barker—The actual cases, many hundreds of them, have been investigated and considered by us, and they leave that proposition, I think I might say, indefinite.

Mr. Sims—Are you a member of the board of health of Massachusetts?

Mr. Barker—No, sir, of the Gas and Electric Light Commission.

Mr. Sims—Are you a physician?

Mr. Barker—No, sir.

Mr. Sims—I do not remember; I did not know but what you were.

Mr. Barker—No, sir. I hope I make my understanding of it clear, and that is, that it is simply a question of expediency, and this being the Capital City, and we are trying to keep it in condition to be beautiful, and so forth, I thought it was to the interest of the people here to use water gas, and that is to say, if possible, to get rid of the ashes and cinders that come out of the use of coal or other fuel, and if gas can be made that can be used for heating purposes, cooking ranges, gas heaters, and things of that sort, it seems to me that it is to encourage it in this city, especially rather than retard it.

Mr. Barker—I presume the gas was probably used in this city now largely for cooking purposes, but very little for heating purposes.

Mr. Sims—They have small gas heaters in bathrooms and small rooms, and the like of that, now.

Mr. Barker—Yes, but it is really a small use.

Mr. Sims—Yes, it might be ignored entirely.

Mr. Taylor—You refer to heating houses?

Mr. Barker—I refer to heating houses. Illuminating rooms is a regular method. I suspect that where gas is used for heating rooms it is only intermittently used, occasionally.

Mr. Sims—I have heard people say here that to cook exclusively with gas costs them less than the coal.

Mr. Barker—That demands a low-priced gas.

Mr. Sims—We are coming right to the point. Can you make a low-priced gas with water and re-enforce it with oil sufficient to make a 22-candle power gas?

Mr. Barker—Oh, yes.

Mr. Sims—To raise it to the 22 candle power, you would make any cheaper gas than you would to make coal gas of a higher candle power?

Mr. Barker—Oh, yes; the fact is that the ordinary water gas, so-called, is a mixture of water and coal gas, and the oil are used together to manufacture the carburetted water gas.

Mr. Sims—In using carburetted water gas as fuel for cooking ranges, will it or not be more dangerous, in a practical way, than coal gas?

Mr. Barker—I think not. I cannot see why.

Mr. Sims—Your investigations that are the basis of your conclusions, are they?

Mr. Barker—Yes, sir.

Mr. Taylor—Several gentlemen from out of the city, Mr. Sims, are here to be heard.

Mr. Sims—Well, I thought that if we could get the information out now, we had